Appendix D: MTC 2004 SafetyTAP Study Excerpt: Bicycle-Related Collisions

CITY OF SUNNYVALE

Metropolitan Transportation Commission
Pedestrian and Bicycle SafetyTAP Report
Appendices

March 2004

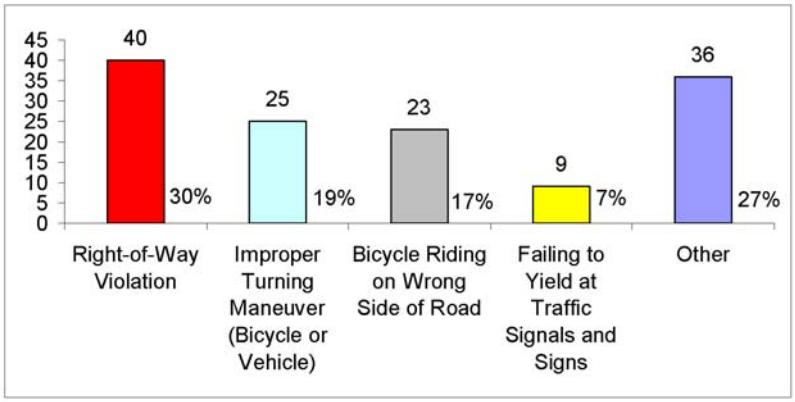
Bicycle Collisions

Between June 30, 1999 and June 30, 2002, there was a total of 133 bicycle collisions reported in Sunnyvale, California.

Collisions

Figure 1, below, presents the top Primary Collision Factors (PCFs) for bicycle-related collisions in Sunnyvale during the study period.

Figure 1
Primary Collision Factors for Bicyclists



Right-of-Way Violations

The largest category of collisions in Sunnyvale for cyclists involves a right-of-way violation. The party at fault in the majority of these collisions is the motorist at 80 percent of the collisions, while the cyclist is at fault 20 percent of the time. All collisions where the cyclist was found to be at fault involve males, and seven of eight involve males under 16. Interestingly, these collisions all involve female drivers.

Males between the ages of 30 and 45 represent the majority of drivers at fault in collisions involving a right-of-way violation. Overall, men represent 83 percent of drivers at fault in these crashes.

The two main vehicle code violations for right-of-way collisions are:

1) Drivers failing to yield to on-coming cyclists when executing a left turn at an intersection.
2) Drivers or cyclists failing to yield to on-coming traffic when exiting an alley or driveway. All collisions where the cyclist is at fault fall into this category.

For collisions in the first category, around half were at signalized intersections and half at uncontrolled intersections. A majority occurred during daylight hours under clear conditions, and all were on major roads. Collisions in the second category occurred more often on minor roads, and all of the collisions involving cyclists in this category (i.e. males under 16) occurred on minor roads.

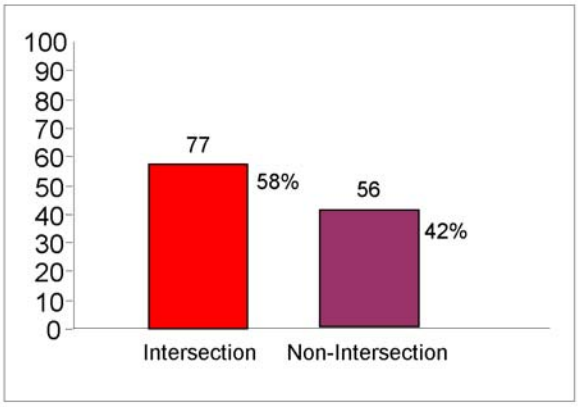
Improper Turning

For collisions where the Primary Collision Factor is improper turning, motorists were found to be at fault in 85 percent of the collisions. In collisions where the motorist was at fault, a majority were the result of the motorist executing a right turn traveling in the same direction as the cyclist. Most likely, these are collisions where the cyclist was traveling to the right of the motorist when the motorist made the right turn.

Intersection and Non-Intersection Collisions

More than half of all reported bicycle collisions (including non-injury collisions) occurred at or near intersections, while 42 percent occurred away from intersections. Nationally, bicycle fatalities occur more often at non-intersection locations (66 percent).[1] Figure 2, below, presents the number and percentages of crashes involving bicyclists that occur at and away from intersections.

Figure 2
Bicycle Collision Locations



Of the collisions that occurred at intersections, 64 percent of the locations were controlled intersections and 36 percent were uncontrolled. At controlled locations, drivers are more often at fault (65 percent of the time), while at uncontrolled locations, cyclists are at fault as often as drivers.

[1] *Traffic Safety Facts 2001: Pedalcyclists,* National Highway Traffic Safety Administration, www-nrd.nhtsa.dot.gov/pdf/nrd-30/ncsa/tsf2001/2001pedal.pdf , 7/12/03

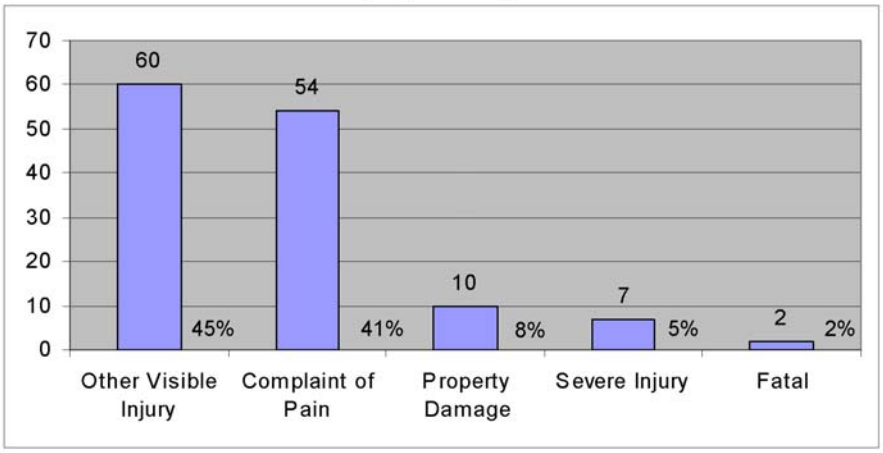
When cyclists are at fault at controlled locations, the two primary causes are red-light running and wrong-way riding. When drivers are found to be at fault at these locations, the largest number are executing a left turn, followed by those executing a right turn. A similar pattern emerges at uncontrolled intersections. Drivers at fault at these locations are usually executing a left turn.[2] When the cyclist is at fault, wrong–way riding is the main cause for collisions, followed by improper turning.

At non-intersection locations where the cyclist is at fault, wrong-way riding – a large proportion of which is by adult males – is the primary cause, followed by "dart-out" collisions on minor roads where a cyclist is exiting a driveway or alley. These collisions have a higher number of minors (all male) involved in them as they encompass the "dart-out" collisions noted in the Primary Collision Factor section. The main causes for collisions when drivers are at fault include improper turning (usually executing a right turn) and entering traffic from an alley or driveway.

Extent of Injury

Figure 3 displays the extent of injury for bicycle collisions during the study period.

Figure 3
Extent of Injury for Bicycle Collisions



Of the most injurious collisions, those involving a visible or severe injury, drivers are most often at fault. Improper turning by motorists is the primary cause of these collisions. Male

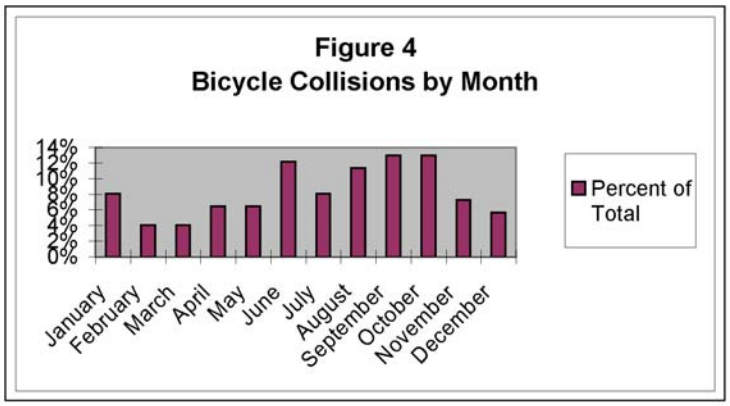
[2] Although under "improper turning," the main cause of driver-at-fault collisions is making a right turn, a collision where the driver or cyclist is executing a left turn may be classified as a right-of-way violation or improper turning.

cyclists under 18 and between the ages of 19 and 25 are the primary group represented in the injurious crashes.

Conditions

Seasonality

Figure 4, below, presents the percentages of bicycle collisions that occurred each month of the year. The summer and early fall months June through October appear to have the highest percentages of all collisions. This is the period when the weather is most conducive to bicycling; therefore, the spike in collisions is likely a result of higher bicycle ridership during these months. In fact, almost 60 percent of all bicycle collisions occur during this time. Additionally, 10 of the 13 collisions where the party at fault is a male cyclist under 18 occur during these months. The same trend is not found among collisions where the party at fault is a driver of either sex under 18.



Weather and Lighting

As can be seen in Figures 5 and 6, a clear majority of bicycle collisions occur in clear weather and in daylight hours. According to the National Insurance Institute for Highway Safety, between one-quarter and one-third of all bicycle fatalities nationally occur during non-daylight hours. Although the collisions described below are not limited to fatal crashes, they appear to be consistent with national trends.

Figure 5
Weather Conditions During Bicycle Collisions

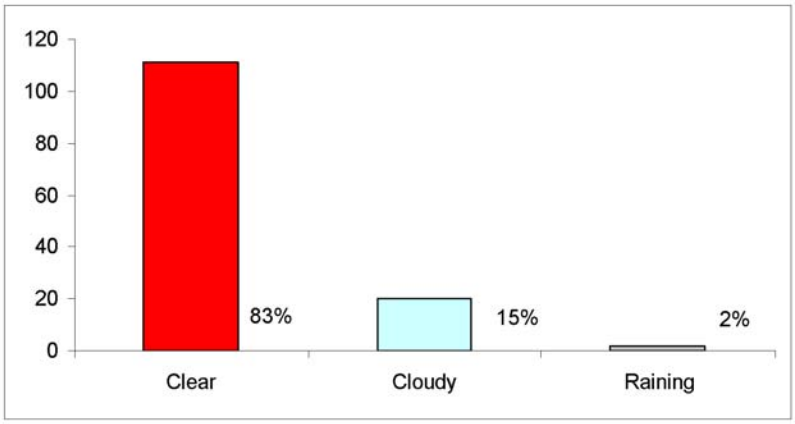
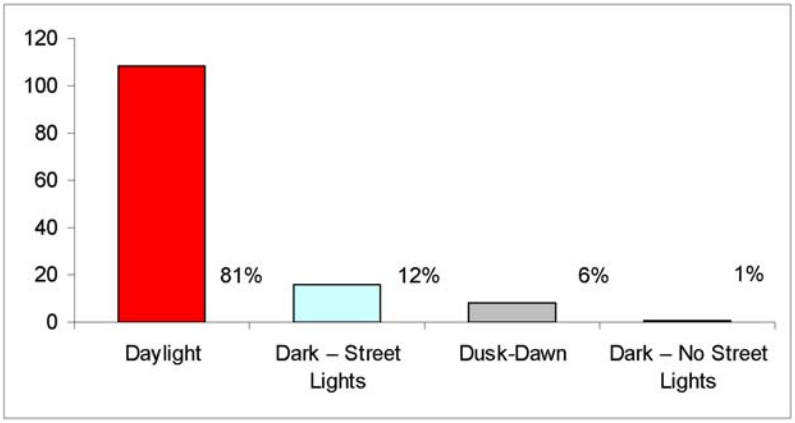


Figure 6
Lighting Conditions During Bicycle Collisions



Around 20 percent of all collisions occur during non-daylight hours. Drivers and cyclists are equally at fault in collisions that occur at night or during the dusk-dawn hours. A large majority (72 percent) occur at intersections, with a 50-50 split between controlled and uncontrolled locations. The cause for these collisions follows a pattern similar to the pattern for intersection crashes overall. Almost half of the cyclists involved in these collisions are between the ages of 17 and 25, whether they are at fault or not. Half of the crashes that occur in non-daylight hours result in severe or visible injury.

Demographics

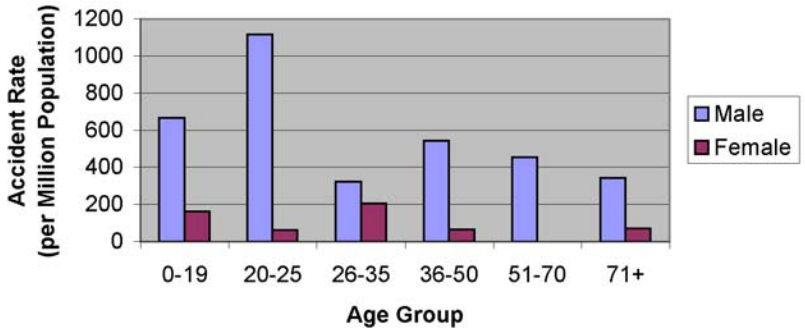
Male bicyclists in Sunnyvale under the age of 20 had the highest percentage of bicycle collisions during the study period. Across all age groups, male cyclists are involved with 84 percent of all bicycle collisions. Table 1 indicates that both males and females have collision rates almost twice the national average

In collisions where female cyclists are at fault, wrong-way riding is the prevalent cause. Of the total 22 collisions that involve female cyclists, drivers are at fault in 68 percent. When male cyclists are involved in bicycle collisions, they are at fault more often than female cyclists (42 percent of the time).

Table 1
Bicycle Collision Rates for Cyclists over the Age of 20 (per Million Population)

	Males	Females
Sunnyvale, California	505	93
National Rate	221	44

Figure 7
Bicycle Accident Rates by Age and Gender



DUI

In all but one of the collisions involving alcohol, the cyclist was found to be at fault. While these collisions account for a small number (six) of the overall collisions, they result in severe injury more often. They mostly occur during daylight hours, a majority between three and five o'clock.

High Incidence Locations

The high-incidence locations for cyclists include the following intersections:

Top 5 Locations for Bicycle Collisions (mix of mid-block and intersection)
1.Mary Avenue at El Camino Real (5)
2.El Camino Real between Cezanne Drive and Fair Oaks Avenue (3)
3.Mathilda at El Camino Real (2)
4.Olive at Mathilda (2)
5. Olive at Mary (2)

Partnerships

School District

Sunnyvale has five school districts: the Sunnyvale School District, Santa Clara School District, Fremont High School District, Cupertino School District, and the private school sector. The City works with each of the districts at different need levels.

Police Department

Public Works has a good working relationship with the police department. They do not have regularly scheduled meetings, but frequent contact is made on a case-by-case basis.

Department of Public Safety

Public Safety and Transportation and Traffic share high collision location information. The two divisions are collaborating on development and operation of a shared database for collision information.

Community Groups

The City has a staff liaison to the BPAC, which meets once a month. The BPAC sends one representative to the regional Bicycle Advisory Committee. The BPAC was formed in 1992. Apart from the BPAC, there are no advocacy or community organizations that staff interacts with on a formal regular basis.

Programs in Other Cities

Other cities participating in the Safety TAP have policies that may be appropriate for the City of Sunnyvale.

Santa Rosa

Bicycle Map: Santa Rosa currently has a bicycle map available online that advertises to cyclists the most appropriate routes for cycling within the City. Sunnyvale residents may access the recently published VTA map online, but a map specific to Sunnyvale may also be useful.

Take a Free Ride Program: This program offers a list of incentives for employees to utilize alternative modes to commute to work. Funds for this program are provides for using a Transportation Fund for Clean Air (TFCA) grant.

Interlink program: This program provides transportation services and support for children with disabilities. The programs also sponsors "Barrier Awareness Day" in October.

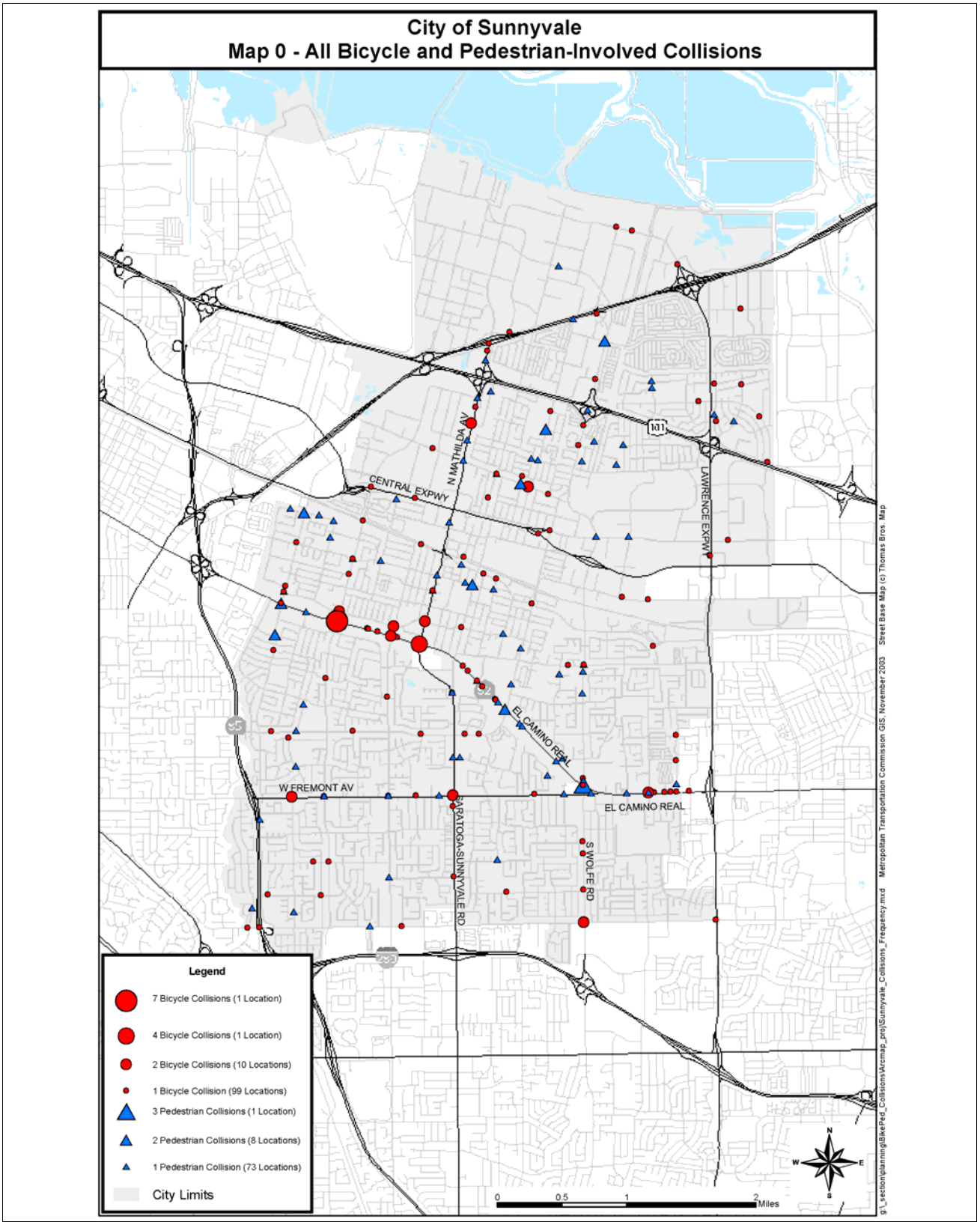
Napa

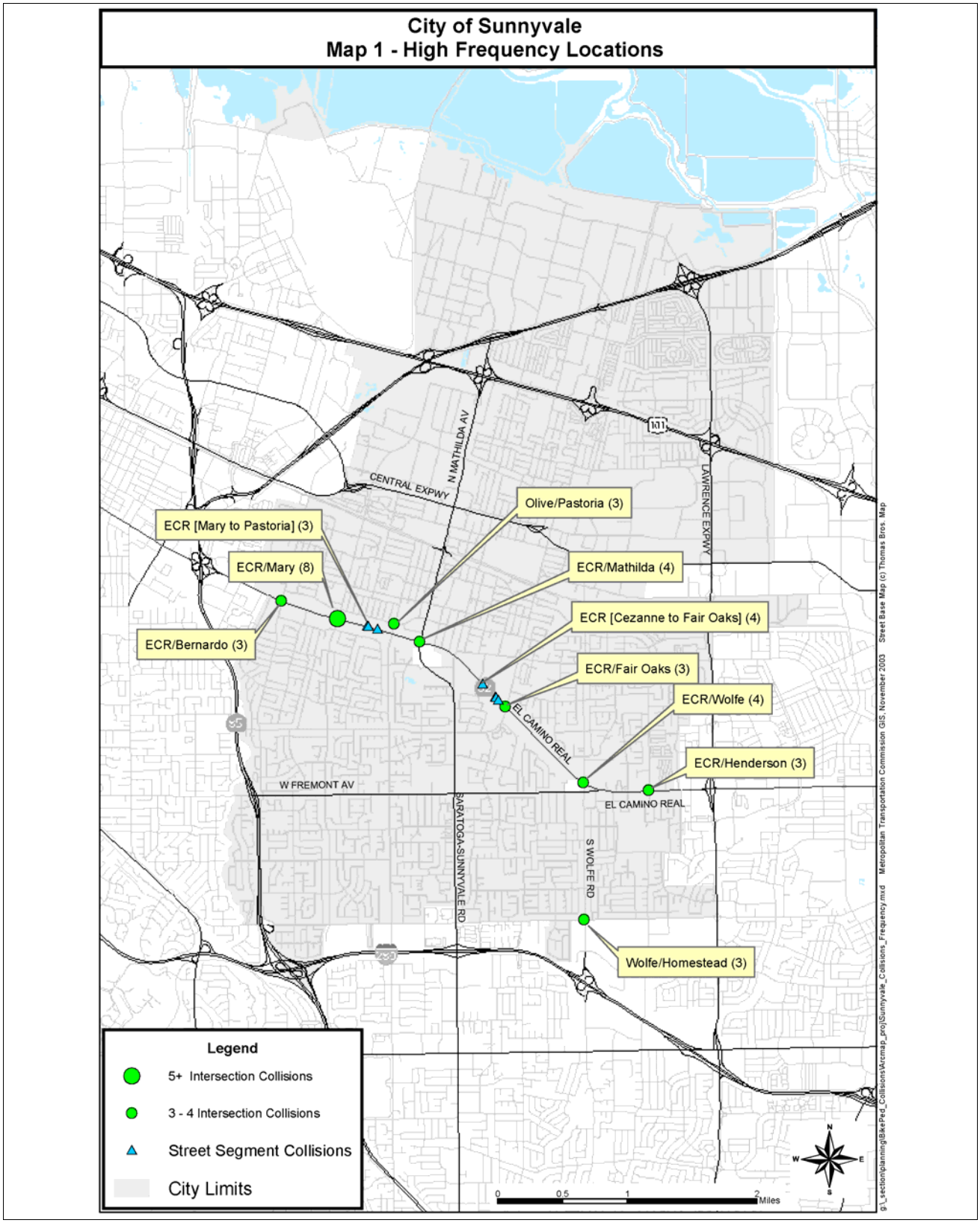
Share the Road Signs: The City of Napa Traffic Engineering Department has policies for installing "Share the Road" signs along Class III facilities with high collision histories, high bike and auto volumes, and right of way constraints.

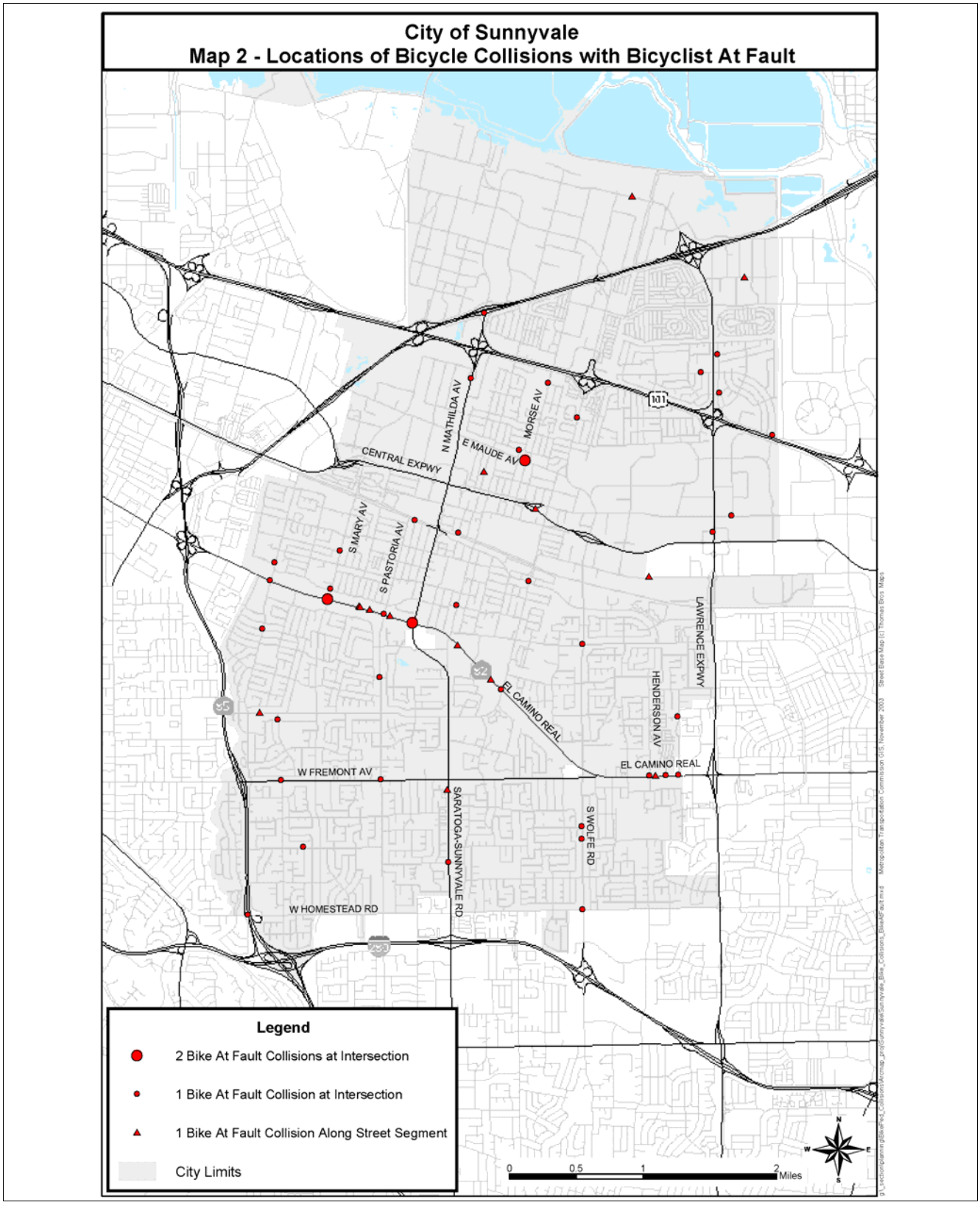
Junior Traffic Patrol: The Napa Junior Traffic Patrol originated in 1955 as a cooperative effort between the Napa Police Department and area schools. Each year, students selected for the program receive training from the Police department and accept responsibility for controlling pedestrian and vehicle traffic at and around their school.

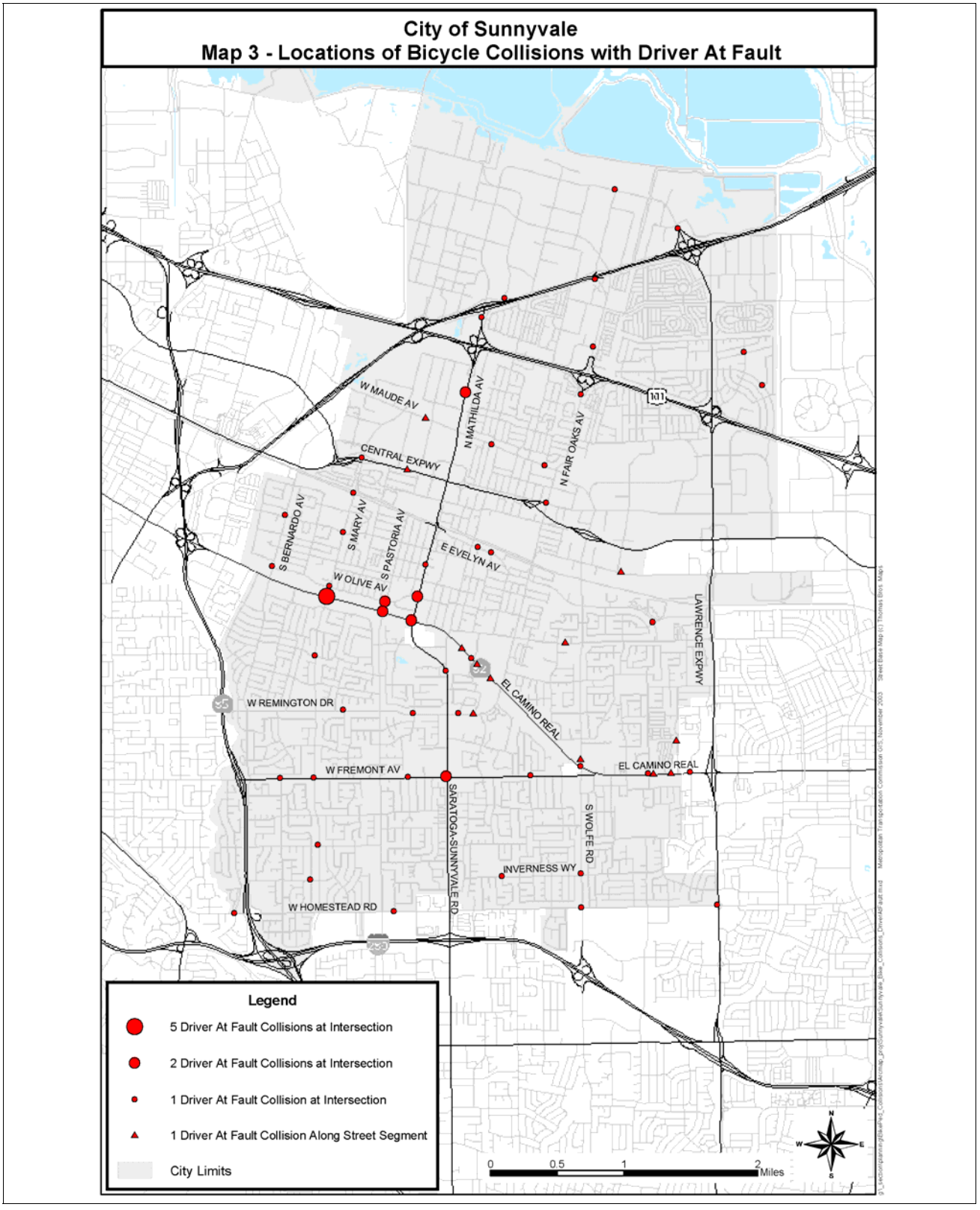
Fremont

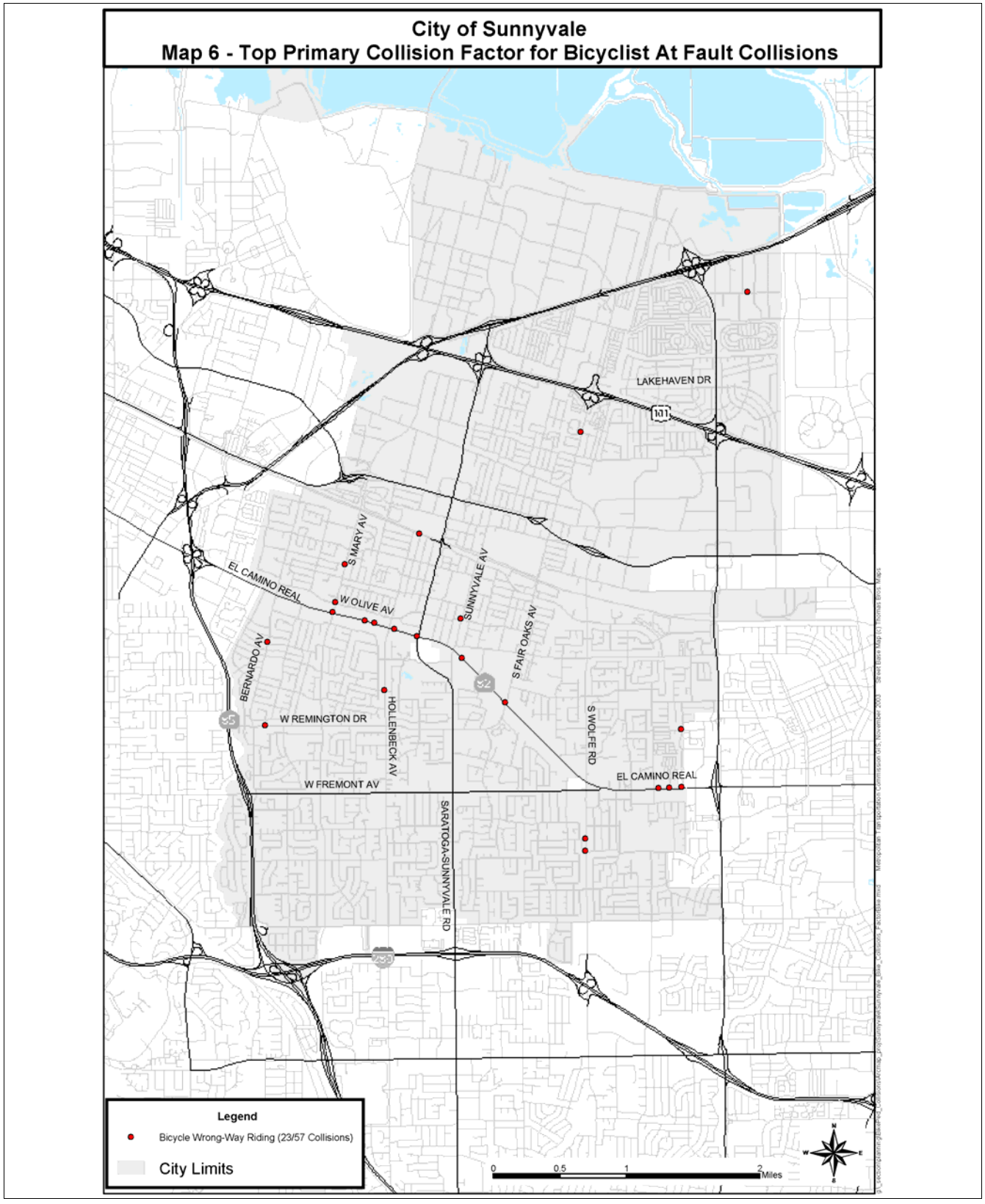
Junior Safety Patrol: The Junior Safety Patrol is the result of a partnership between the Fremont Police Department, the Fremont Unified School District, and the California State Automobile Association. With a volunteer staff member or parent at each school, fifth and sixth grade students are trained to ensure safety of pedestrians at crossings near the school.

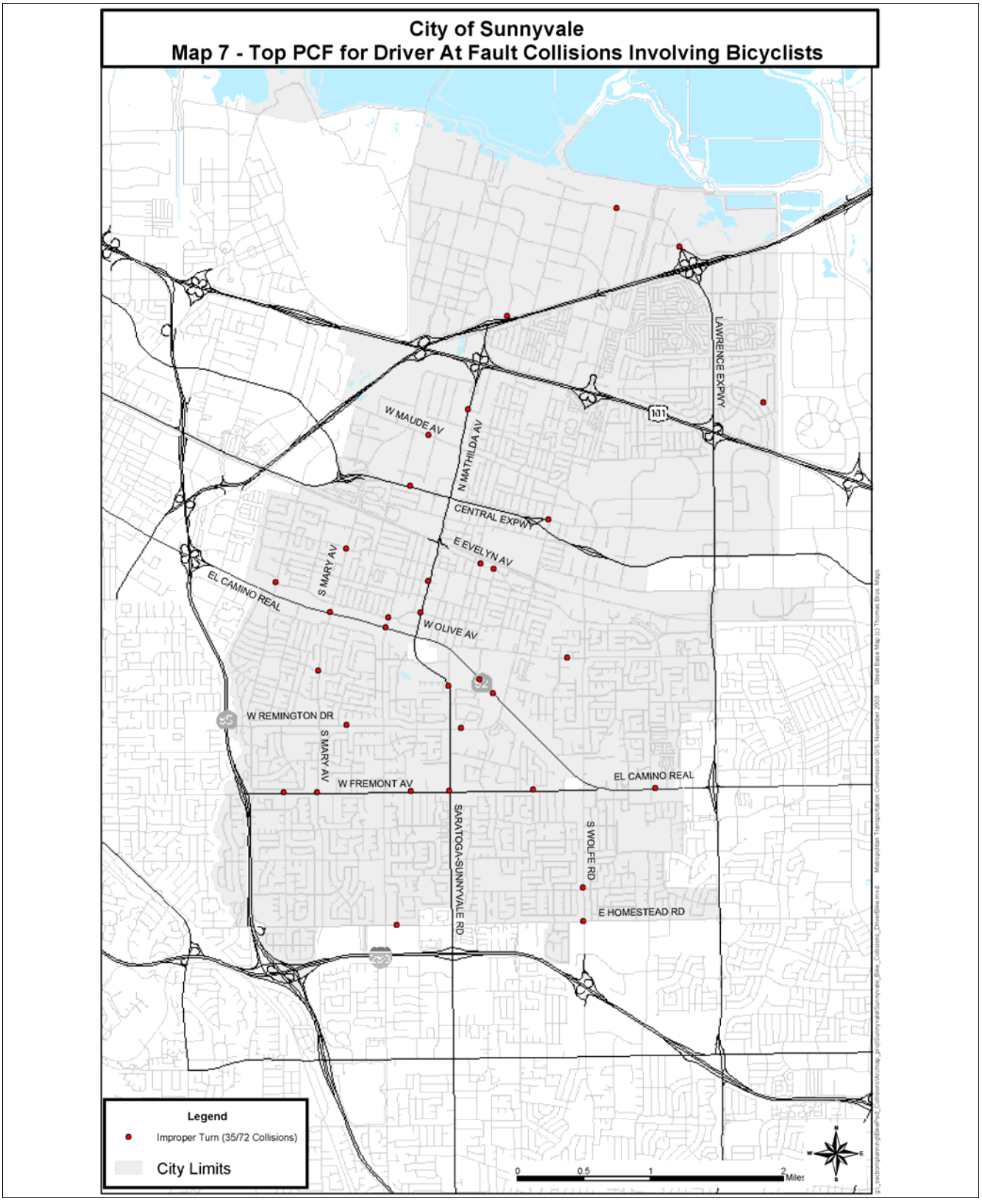

City of Sunnyvale
Map 0 - All Bicycle and Pedestrian-Involved Collisions
CENTRAL EXPWY
N MATHILDA AV
LAWRENCE EXPWY
101
EL CAMINO REAL
W FREMONT AV
SARATOGA-SUNNYVALE RD
S WOLFE RD
Legend
7 Bicycle Collisions (1 Location)
4 Bicycle Collisions (1 Location)
2 Bicycle Collisions (10 Locations)
1 Bicycle Collision (99 Locations)
3 Pedestrian Collisions (1 Location)
2 Pedestrian Collisions (8 Locations)
1 Pedestrian Collision (73 Locations)
City Limits
0 0.5 1 2 Miles
N
W
E
S
Street Base Map (c) Thomas Bros. Map
Metropolitan Transportation Commission GIS, November 2003
g:_section\planning\BikePed_Collisions\Arcmap_proj\Sunnyvale_Collisions_Frequency.mxd

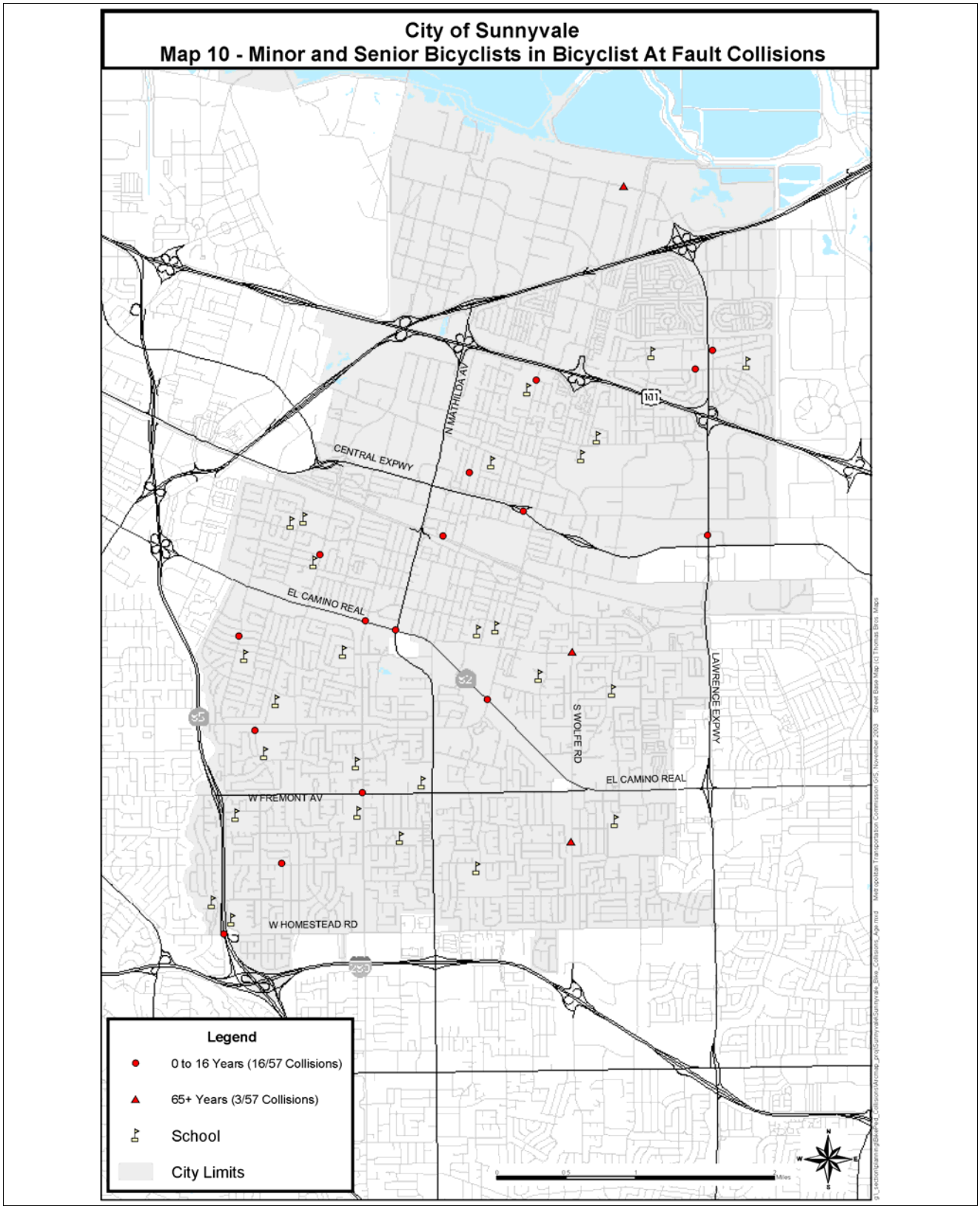

City of Sunnyvale
Map 1 - High Frequency Locations
CENTRAL EXPWY
N MATHILDA AV
LAWRENCE EXPWY
W FREMONT AV
EL CAMINO REAL
SARATOGA-SUNNYVALE RD
S WOLFE RD
ECR [Mary to Pastoria] (3)
ECR/Mary (8)
ECR/Bernardo (3)
Olive/Pastoria (3)
ECR/Mathilda (4)
ECR [Cezanne to Fair Oaks] (4)
ECR/Fair Oaks (3)
ECR/Wolfe (4)
ECR/Henderson (3)
Wolfe/Homestead (3)
Legend
5+ Intersection Collisions
3 - 4 Intersection Collisions
Street Segment Collisions
City Limits
0
0.5
1
2
Miles
N
W
E
S
g:\section\planning\BikePed_Collisions\Arcmap_proj\Sunnyvale_Collisions_Frequency.mxd Metropolitan Transportation Commission GIS, November 2003 Street Base Map (c) Thomas Bros. Map

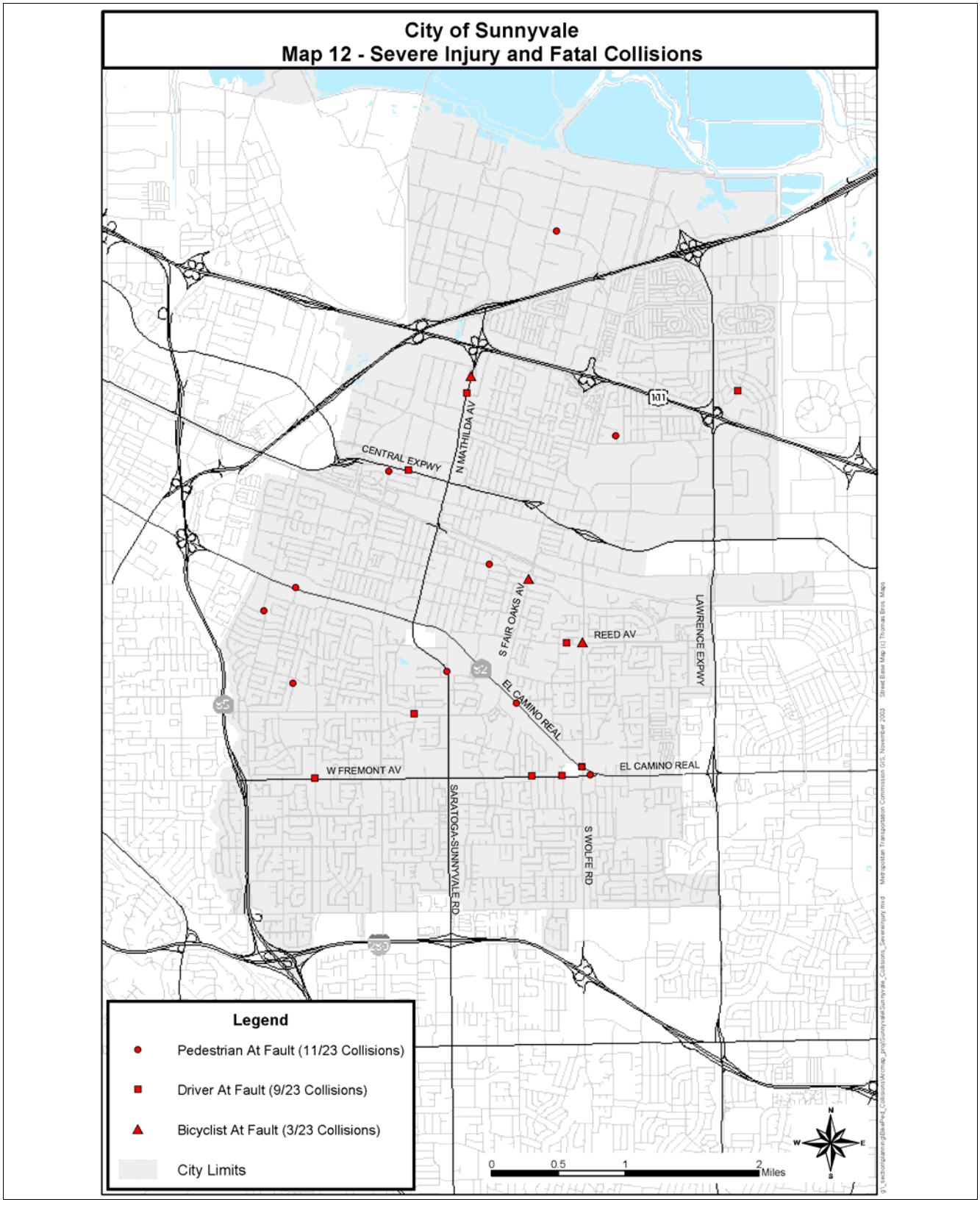

City of Sunnyvale
Map 2 - Locations of Bicycle Collisions with Bicyclist At Fault
CENTRAL EXPWY
N MATHILDA AV
MORSE AV
E MAUDE AV
S MARY AV
S PASTORIA AV
EL CAMINO REAL
LAWRENCE EXPWY
HENDERSON AV
W FREMONT AV
SARATOGA-SUNNYVALE RD
S WOLFE RD
W HOMESTEAD RD
Legend
2 Bike At Fault Collisions at Intersection
1 Bike At Fault Collision at Intersection
1 Bike At Fault Collision Along Street Segment
City Limits
0
0.5
1
2
Miles

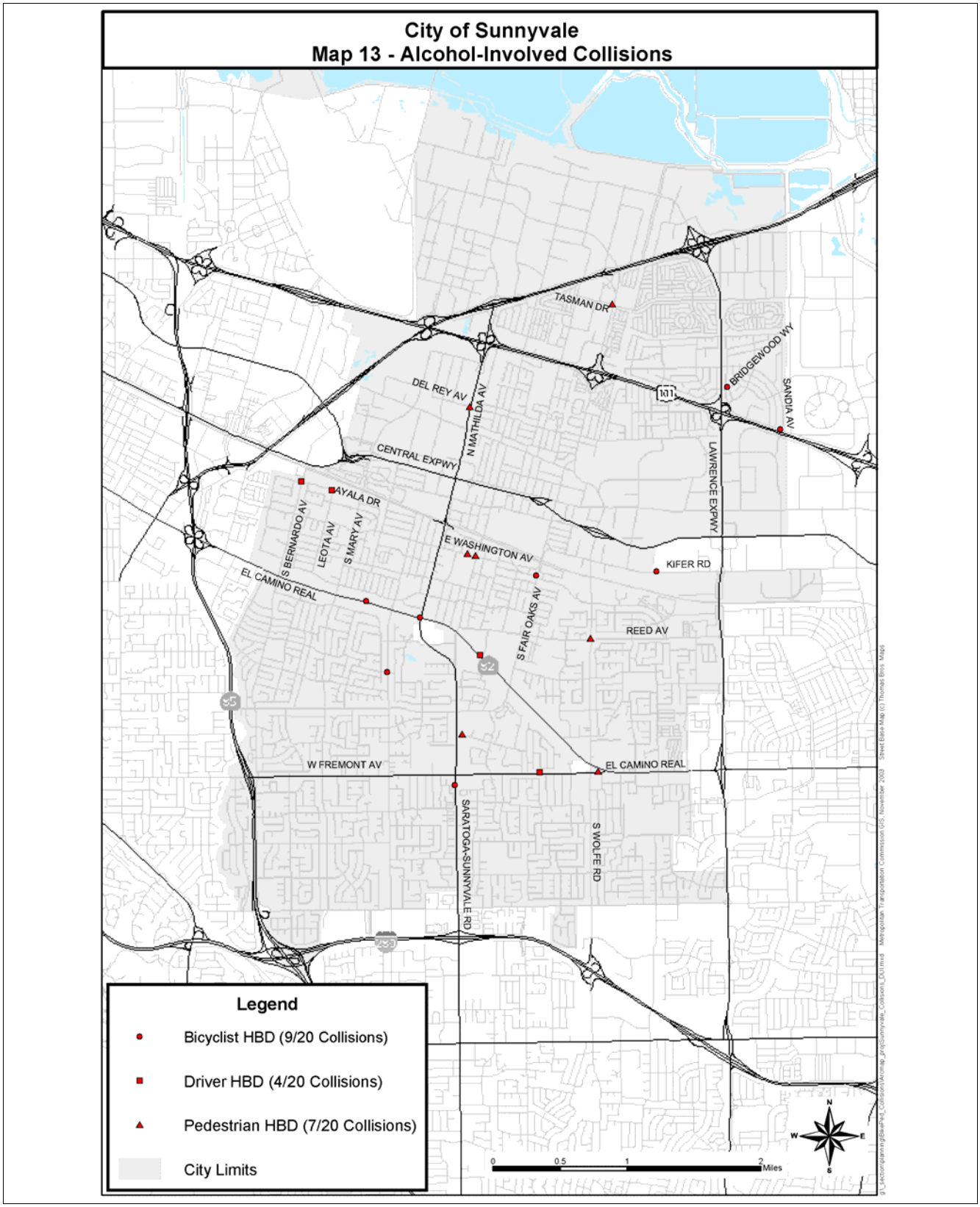

City of Sunnyvale
Map 3 - Locations of Bicycle Collisions with Driver At Fault
W MAUDE AV
N MATHILDA AV
N FAIR OAKS AV
CENTRAL EXPWY
S BERNARDO AV
S MARY AV
S PASTORIA AV
E EVELYN AV
W OLIVE AV
LAWRENCE EXPWY
EL CAMINO REAL
W REMINGTON DR
W FREMONT AV
SARATOGA-SUNNYVALE RD
S WOLFE RD
INVERNESS WY
W HOMESTEAD RD
Legend
5 Driver At Fault Collisions at Intersection
2 Driver At Fault Collisions at Intersection
1 Driver At Fault Collision at Intersection
1 Driver At Fault Collision Along Street Segment
City Limits
0
0.5
1
2
Miles
N
W
E
S

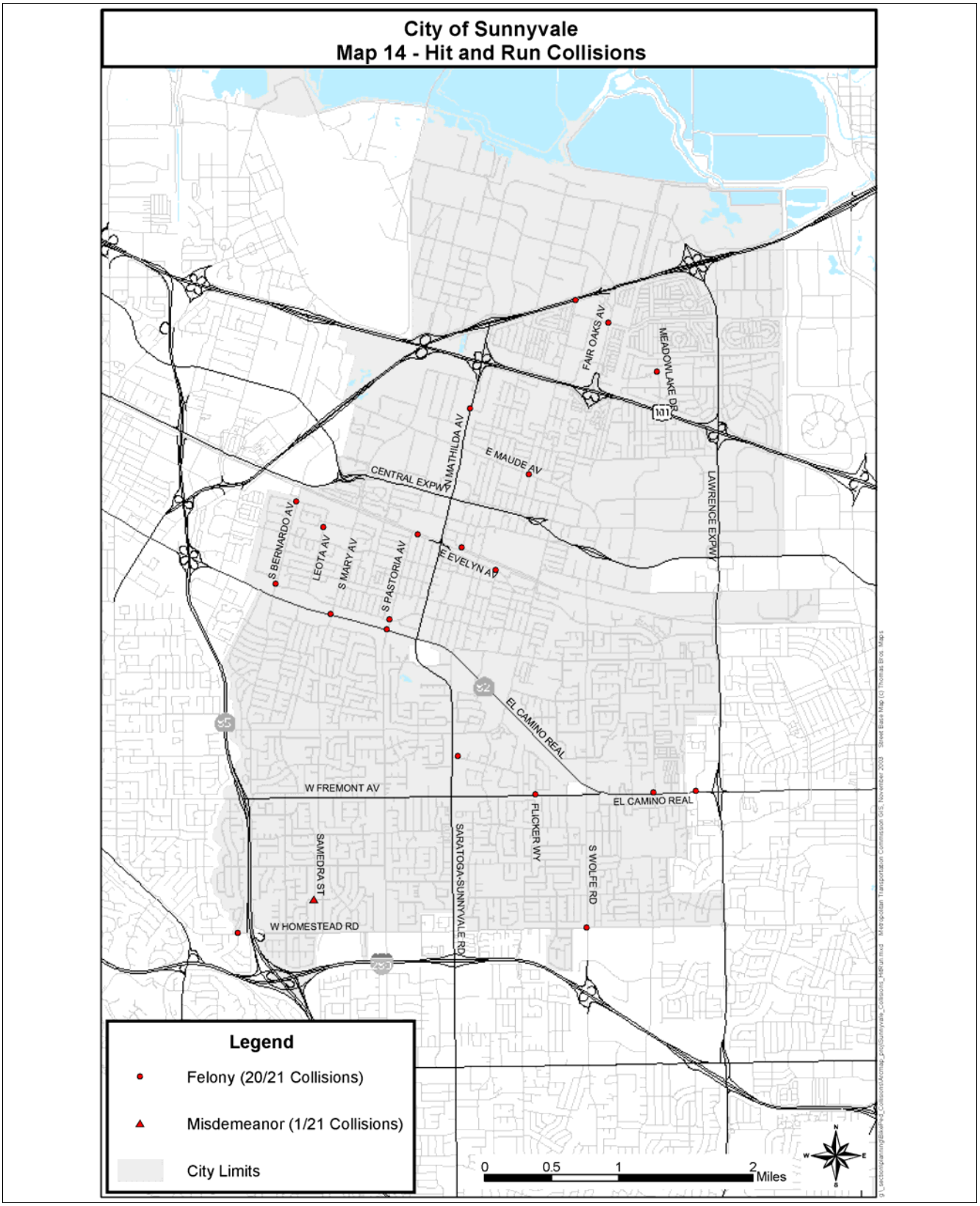

City of Sunnyvale
Map 6 - Top Primary Collision Factor for Bicyclist At Fault Collisions
LAKEHAVEN DR
101
S MARY AV
EL CAMINO REAL
W OLIVE AV
SUNNYVALE AV
S FAIR OAKS AV
BERNARDO AV
W REMINGTON DR
HOLLENBECK AV
S WOLFE RD
EL CAMINO REAL
W FREMONT AV
SARATOGA-SUNNYVALE RD
Legend
Bicycle Wrong-Way Riding (23/57 Collisions)
City Limits
0
0.5
1
2
Miles

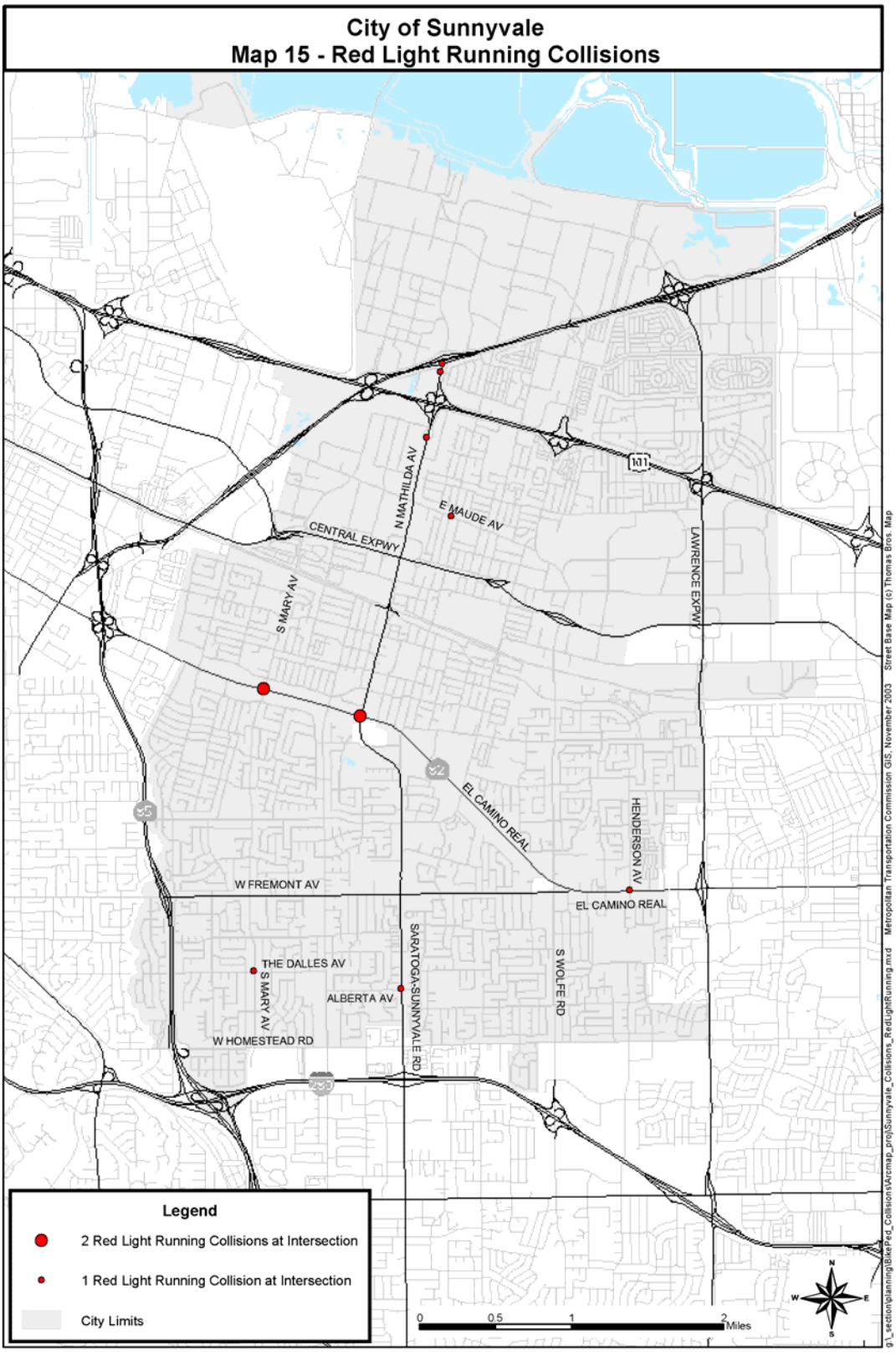

City of Sunnyvale
Map 7 - Top PCF for Driver At Fault Collisions Involving Bicyclists
W MAUDE AV
N MATHILDA AV
LAWRENCE EXPWY
CENTRAL EXPWY
E EVELYN AV
S MARY AV
EL CAMINO REAL
W OLIVE AV
W REMINGTON DR
S MARY AV
W FREMONT AV
EL CAMINO REAL
SARATOGA-SUNNYVALE RD
S WOLFE RD
E HOMESTEAD RD
Legend
Improper Turn (35/72 Collisions)
City Limits
0
0.5
1
2
Miles

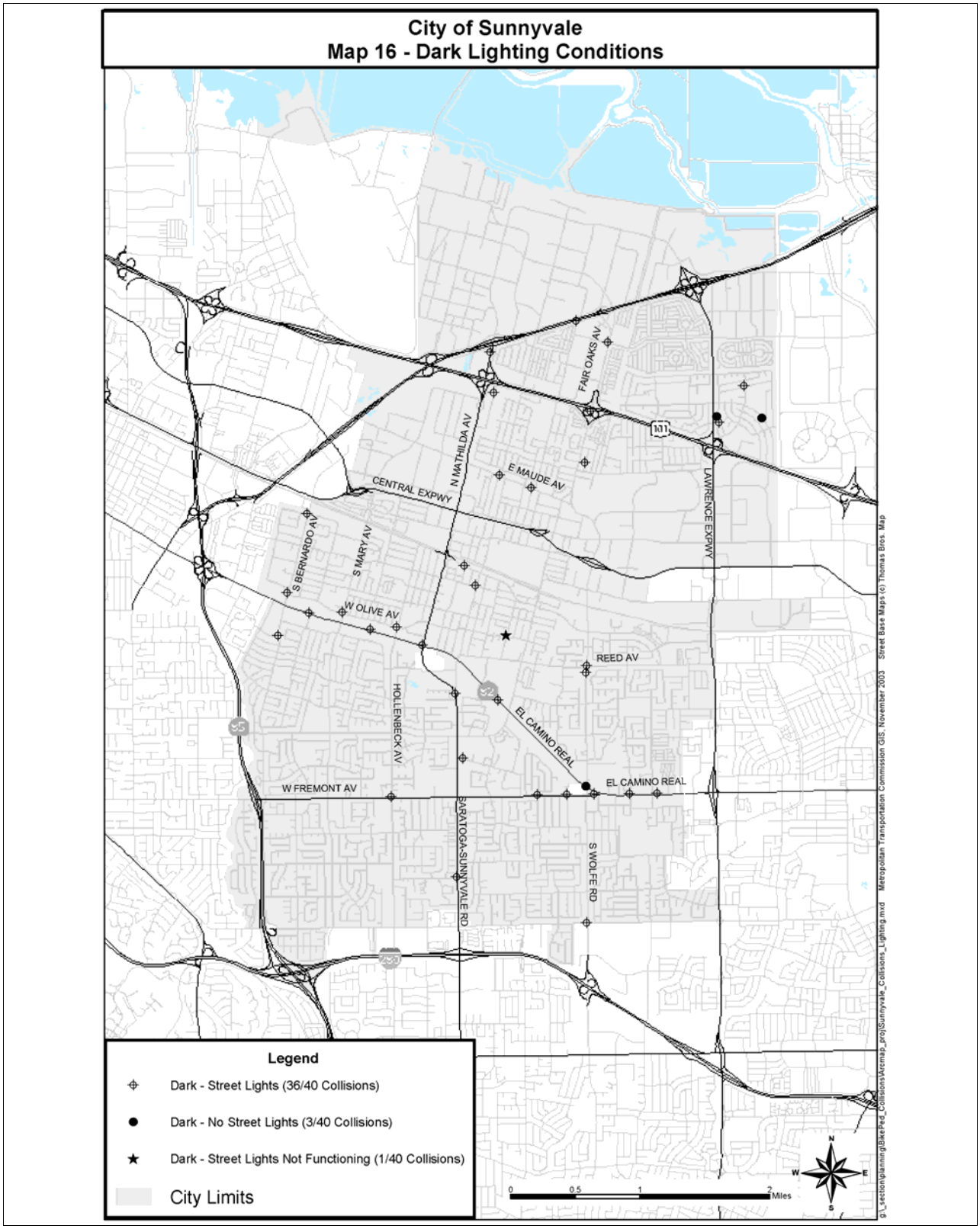

City of Sunnyvale
Map 10 - Minor and Senior Bicyclists in Bicyclist At Fault Collisions
CENTRAL EXPWY
N MATHILDA AV
EL CAMINO REAL
S WOLFE RD
LAWRENCE EXPWY
W FREMONT AV
W HOMESTEAD RD
Legend
0 to 16 Years (16/57 Collisions)
65+ Years (3/57 Collisions)
School
City Limits

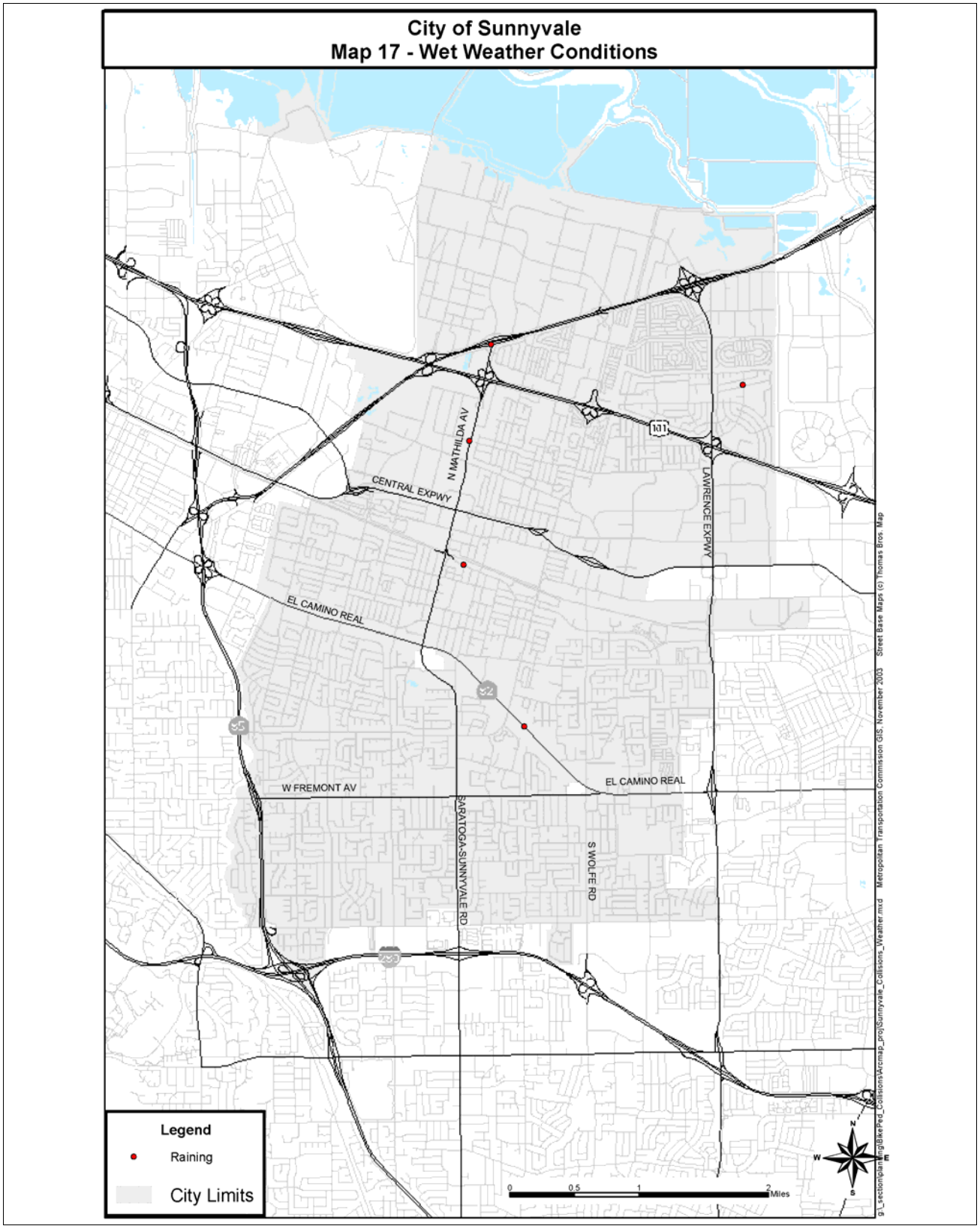

City of Sunnyvale
Map 12 - Severe Injury and Fatal Collisions
CENTRAL EXPWY
N MATHILDA AV
S FAIR OAKS AV
REED AV
LAWRENCE EXPWY
EL CAMINO REAL
W FREMONT AV
SARATOGA-SUNNYVALE RD
S WOLFE RD
101
82
85
280
Legend
Pedestrian At Fault (11/23 Collisions)
Driver At Fault (9/23 Collisions)
Bicyclist At Fault (3/23 Collisions)
City Limits
0
0.5
1
2
Miles
N
W
E
S

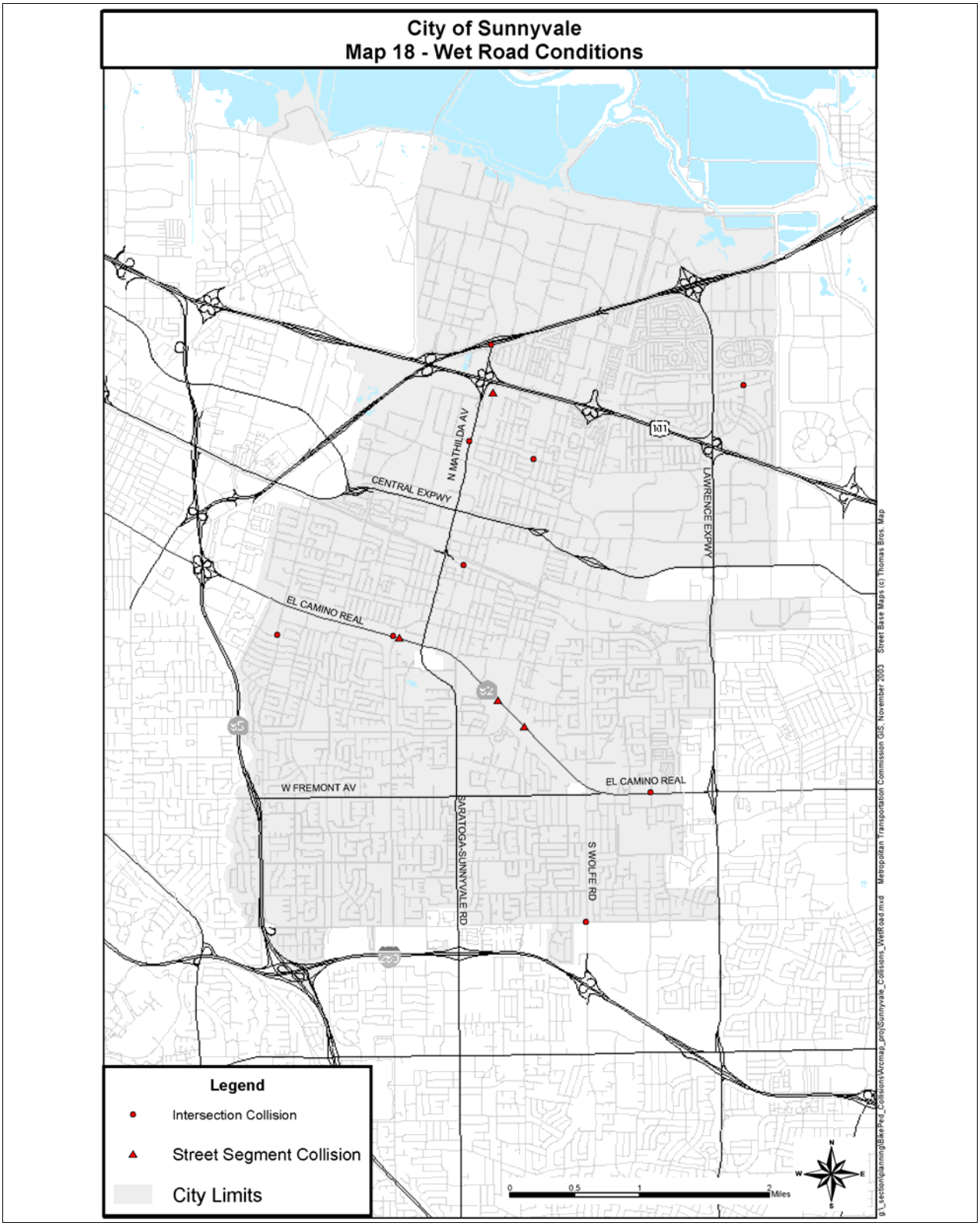

City of Sunnyvale
Map 13 - Alcohol-Involved Collisions
TASMAN DR
DEL REY AV
N MATHILDA AV
BRIDGEWOOD WY
SANDIA AV
CENTRAL EXPWY
LAWRENCE EXPWY
AYALA DR
S BERNARDO AV
LEOTA AV
S MARY AV
E WASHINGTON AV
KIFER RD
EL CAMINO REAL
S FAIR OAKS AV
REED AV
W FREMONT AV
EL CAMINO REAL
SARATOGA-SUNNYVALE RD
S WOLFE RD
Legend
Bicyclist HBD (9/20 Collisions)
Driver HBD (4/20 Collisions)
Pedestrian HBD (7/20 Collisions)
City Limits
0
0.5
1
2
Miles
N
W
E
S


City of Sunnyvale
Map 14 - Hit and Run Collisions
FAIR OAKS AV
MEADOWLAKE DR
E MATHILDA AV
E MAUDE AV
CENTRAL EXPWY
LAWRENCE EXPWY
S BERNARDO AV
LEOTA AV
S MARY AV
S PASTORIA AV
E EVELYN AV
EL CAMINO REAL
W FREMONT AV
FLICKER WY
S WOLFE RD
SAMEDRA ST
SARATOGA-SUNNYVALE RD
W HOMESTEAD RD
Legend
Felony (20/21 Collisions)
Misdemeanor (1/21 Collisions)
City Limits
0
0.5
1
2
Miles


City of Sunnyvale
Map 15 - Red Light Running Collisions
N MATHILDA AV
E MAUDE AV
CENTRAL EXPWY
S MARY AV
LAWRENCE EXPWY
101
EL CAMINO REAL
HENDERSON AV
W FREMONT AV
EL CAMINO REAL
THE DALLES AV
S MARY AV
ALBERTA AV
SARATOGA-SUNNYVALE RD
S WOLFE RD
W HOMESTEAD RD
Legend
2 Red Light Running Collisions at Intersection
1 Red Light Running Collision at Intersection
City Limits
0 0.5 1 2 Miles
N
W
E
S
Street Base Map (c) Thomas Bros. Map
Metropolitan Transportation Commission GIS, November 2003
g:_section\planning\BikePed_Collisions\Arcmap_proj\Sunnyvale_Collisions_RedLightRunning.mxd


City of Sunnyvale
Map 16 - Dark Lighting Conditions
FAIR OAKS AV
N MATHILDA AV
E MAUDE AV
CENTRAL EXPWY
LAWRENCE EXPWY
S BERNARDO AV
S MARY AV
W OLIVE AV
REED AV
HOLLENBECK AV
EL CAMINO REAL
W FREMONT AV
SARATOGA-SUNNYVALE RD
S WOLFE RD
Legend
Dark - Street Lights (36/40 Collisions)
Dark - No Street Lights (3/40 Collisions)
Dark - Street Lights Not Functioning (1/40 Collisions)
City Limits
0
0.5
1
2
Miles
N
W
E
S
Street Base Maps (c) Thomas Bros. Map
Metropolitan Transportation Commission GIS, November 2003
g:\section\planning\Bike\Ped_Collisions\Arcmap_proj\Sunnyvale_Collisions_Lighting.mxd

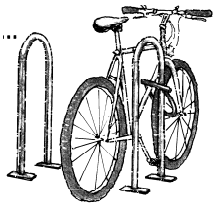
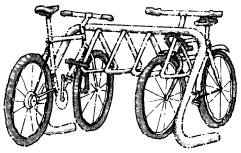

City of Sunnyvale
Map 17 - Wet Weather Conditions
N MATHILDA AV
CENTRAL EXPWY
LAWRENCE EXPWY
EL CAMINO REAL
W FREMONT AV
SARATOGA-SUNNYVALE RD
S WOLFE RD
Legend
Raining
City Limits
0
0.5
1
2
Miles
N
W
E
S


City of Sunnyvale
Map 18 - Wet Road Conditions
N MATHILDA AV
CENTRAL EXPWY
LAWRENCE EXPWY
EL CAMINO REAL
W FREMONT AV
SARATOGA-SUNNYVALE RD
S WOLFE RD
Legend
Intersection Collision
Street Segment Collision
City Limits
0
0.5
1
2
Miles
N
S
W
E

Appendix E: Sample Visual Guide to Bicycle Racks

Sample Visual Guide to Bicycle Racks

Acceptable Types: Use at new sites, and to replace unacceptable types

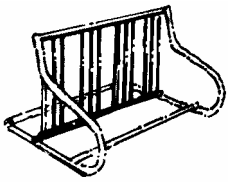
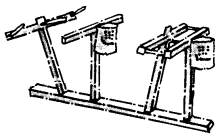
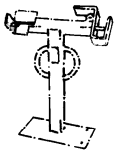
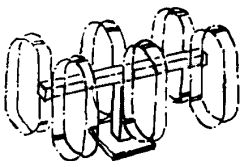
Name	Shape	Description
"Wave" * *also known as "Ribbon"*		SUPPORT: Supports bike's frame acceptably, but does not prevent front-wheel "flop-over". SECURITY: Enables U-locking of frame and wheel. CAPACITY: 1 bike per upright in 2-sided sites. 1 bike per 2 uprights in 1-sided sites unless very wide spacing is specified.
Single Inverted-U *2 units shown*		SUPPORT: Supports bike's frame acceptably, but does not prevent front-wheel "flop-over". Ideal rack for downtown sidewalk edge by car parking (orient plane of "U" parallel to curb in such sites). SECURITY: Enables U-locking of frame and wheel. CAPACITY: 2 bikes per "U" with ease, 4 if cyclists know how.
Multiple Inverted-U		SUPPORT: Supports bike's frame acceptably, prevents front-wheel "flop-over" once bike is locked. SECURITY: Enables U-locking of frame and wheel. CAPACITY: 2 bikes per "U" in 2-sided sites, 1 to 1.5 bikes per "U" in 1-sided sites due to difficulty of backing in every 2nd bike. Avoid narrow spacing – 36" U-to-U recommended; 30" minimum.
"Hanging Triangle" * *Example: Cora "Expo" series*		SUPPORT: Bikes lean against triangles suspended from top bar. Additional 2 bikes can lean against ends. Front wheels cannot flop over once bike is locked. SECURITY: U-lock through rack triangle, bike frame, and wheel. CAPACITY: 1 bike per triangle in 2-sided sites. 1 per 2 triangles in 1-sided sites. Add 2 bikes (for ends) in both cases.
Creative Pipe Lightning Bolt™ *2-bike 1-sided perpendicular model shown*		SUPPORT: 3-point (down tube against post, plus 2 points on wheel well). Enables use of both hands to lock bike and remove cargo without risk of bike toppling. Front baskets clear posts. SECURITY: Loop on post enables U-locking of frame and front or back wheel. Posts slant back to accommodate all frame sizes. CAPACITY: 1 bike per post. OTHER: Available in 1-sided, 2-sided, and 1-sided-diagonal models, all using same post-and-wheel-well module. Stanford University's standard rack.

** = Nicknames*

Figure E.1: Acceptable Bicycle Rack Types

Sample Visual Guide to Bicycle Racks

Unacceptable Types: Replace at all sites unless noted below

Name	Shape	Description / Recommendation
"Arc" * *Single position shown*		SUPPORT: One wheel, poorly. Bike can easily be pushed over by vandals. Suitable only as a display stand inside a bike shop. LOCKING: Cannot lock frame. CAPACITY: 1 bike per wheel holder.
"Comb" * *also known as* **"Dishrack" *, "Ladder" *, "Wheelbender" *** *One of many variations shown*		SUPPORT: Supports only wheel except at ends. Bikes are easily pushed over, "pretzeling" the wheel, hence "wheelbender". SECURITY: Must lift bike over rack to lock frame, or else may lock only the wheel (rest of bike can be stolen), except at ends. CAPACITY: 1 bike per foot in 2-sided sites, 1 per 2 feet if 1-sided. Users often lock sideways against the "comb", blocking others. RECOMMENDATION: Retain at schools especially if in fenced and locked compound or in direct view of office staff.
PW Athletics "Loop-Rack"	 	SUPPORT: Supports bike acceptably by one wheel. SECURITY: Enables U-locking of frame *but only if "stirrup" faces frame*. 1-sided often set up backwards, defeating this. Rod easily cut. Wheel holders removable if nuts not immobilized. CAPACITY: 1 bike per wheel holder RECOMMENDATION: Retain at schools especially if in fenced and locked compound or in direct view of office staff.
"Rack III" *2-bike unit shown*		SUPPORT: Supports bike frame and captures wheels between T-bars (1 fixed, 1 movable), but many "mountain bikes" do not fit. SECURITY: Captures frame and both wheels. Protects padlock, but most cyclists now use U-locks. Large U-locks fit around both T-bars, but few know this. Hence, not secure for typical user. CAPACITY: 1 bike per pair of T-bars
"Rally Rack" *2-bike unit shown*		SUPPORT: Bracket is intended to support the bike's down tube, but many mountain bikes are too large to fit. Scratches paint. SECURITY: Cannot U-lock bike frame. CAPACITY: 1 bike per down-tube bracket (usually seen in pairs)
"Park-Rite" *2-sided shown; 1-sided available*		SUPPORT: Supports only the end of one wheel. SECURITY: Cannot U-lock bike frame. Steel rod easily cut by hacksaw or bolt cutters. CAPACITY: 1 bike per wheel holder.

** = Nicknames*

Figure E.2: Unacceptable Bicycle Rack Types

Appendix F: Reference information used in developing this Plan

Table F.1: City of Sunnyvale documents reviewed

Document	Date (recent first)
Municipal Code Title 10: Vehicles and Traffic, Chapter 10.56 Bicycles	As of October 2005
Municipal Code Title 19: Zoning	
Bicycle Map Suitability Ratings Update – Summary Table of data *Updates traffic volumes, speed limits, and other information collected by the Bicycle Opportunities Study*	September 2005
Tasman / Fair Oaks Area Pedestrian and Bicycle Circulation Plan	August 2004
Moffett Park Specific Plan	June 2004
Sunnyvale Bicycle Plan (Bicycle Transportation Account update)	2003
Downtown Specific Plan	2003
Standard Operating Procedures: Bicycle And Pedestrian Safety Through Work Zones	September 2003
Long Range Bicycle Capital Improvement Program Study	December 2000
Futures Sites	November 2000
Bicycle Opportunities Study	October 1998
General Plan Land Use and Transportation Element (LUTE)	November 1997
Sunnyvale Bicycle Plan	1993
Sunnyvale Bicycle Plan	April 1984

Table F.2: Other documents reviewed

Agency (alphabetical)	Document	Date
ABAG Bay Trail Project	Bay Trail Gap Analysis Report	September 2005
	"Bay Trail Gap at Moffett Field Closer to Completion" – Article in SVBC newsletter	February-March 2006 issue
Metropolitan Transportation Commission (MTC)	Pedestrian and Bicycle Safety Technical Assistance Program (TAP) Report Appendices	March 2004
	Regional Bicycle Plan	2001
Moffett Park Business and Transportation Association (MPBTA)	Memo: "2005 Commute Mode Survey As It Pertains to Bicycle Transportation" Bicycle-related survey comments received	April 12, 2006
Mountain View, City of	Stevens Creek Trail Reach 4 drawings, notes	Various
	Bicycle Map	2003
Santa Clara, City of	Bicycle Map	2004
South Bay Salt Ponds Restoration Project	Final Phase 1 Actions Report and maps	February 2006
VTA	Countywide Bicycle Plan	2000

Table F.3: Agencies and firms contacted

Agency or firm (alphabetical)	Information
Ariba Inc.	Bike lockers and bicycle commuter support
Association of Bay Area Governments (ABAG)	Bay Trail plans including Moffett Field segments
Caltrain	Bike-on-train usage, bicycle locker utilization
Lockheed Missiles and Space Company	Lockheed-Martin LRT station and bike lockers
Moffett Park Business and Transportation Association (MPBTA)	2005 Commute Mode Survey results and comments pertaining to bicycle transportation
Mountain View, City of	Stevens Creek Trail, other projects near Sunnyvale
Santa Clara, City of	Bikeway network plans near Sunnyvale
School districts: Sunnyvale, Santa Clara Unified, and Cupertino Union	Enrollment areas, enrollment, bicycling estimates
Schools (Elementary, Middle, High)	Bicycling estimates, pickup/drop-off and bus streets.
Valley Transportation Authority (VTA)	Bike-on-transit, bus and LRT service information